



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/586,548

07/19/2006

Shunji Kikuhara

TAN-126

6462

54630 7590 01/05/2010

ROBERTS & ROBERTS, LLP
ATTORNEYS AT LAW
P.O. BOX 484
PRINCETON, NJ 08542-0484

EXAMINER

LIAO, DIANA J

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

01/05/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,548	Applicant(s) KIKUHARA ET AL.	
	Examiner DIANA J. LIAO	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-17 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/1/09 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2003-135970.

JP '970 teaches a three way catalyst with a carrier composition of $\text{La}_{0.01}\text{Ce}_{0.69}[\text{X}]_{0.3}\text{O}_x$. Example 2 contains Pr as the [X] element. The composition also contains palladium, a precious metal. (Table 1) This oxide taught in JP '970 teaches oxide weight percents within the ranges of the instant claims. The composition also contains a BaO element, but since both are used as exhaust treating catalysts, there is reason to believe that it also has the same inherent characteristics as the claimed

Art Unit: 1793

catalyst. The claims are recited to comprise a carrier consisting of essentially ceria-praseodymium-lanthanum oxide, leaving the catalyst open to comprising other components, such as an alkaline earth oxide component, or even an additional carrier, as long as one of the carriers is consisting essentially of ceria-praseodymium-lanthanum oxide. Therefore, claims 1, 2, 4 and 20 are not found patentable over the prior art.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 5-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-135970 in view of Silver (US 6,455,182) and Marecot, et al. (US 5,413,984).

Art Unit: 1793

JP '970 teaches a catalyst carrier as discussed above. JP '970 generally teaches that rhodium and platinum are also known in the exhaust treating art. (para. 2) The catalyst is a three-way catalyst. A three way catalyst is known in the art to reduce nitrogen oxides, oxidize carbon monoxide, and oxidize hydrocarbons in exhaust gas.

Regarding washcoating onto a metal base, JP '970 describes a layered catalyst. The type of substrate the washcoat is applied to is not discussed. However, metal substrates are well known in the art and it would have been obvious to one of ordinary skill to choose an appropriate substrate. Metallic substrates are known for reaching high temperatures quickly and having low deterioration rates at high temperatures, for example. Therefore, applying a washcoat to a metallic base is not found patentable over the prior art.

JP '970 does not teach the use of other precious metals, such as ruthenium, iridium, or silver, in conjunction.

Regarding other noble metals, Silver '182 teaches a catalyst composition for a shift converter containing a ceria mixed oxide and a supported noble metal. Shift converters are used to reduce the CO content in process gases. (col 1, lines 35-41) This is otherwise known as the water gas shift reaction. (col 2, lines 26-30) This is one of the reactions involved in 3-way catalysts. Noble metal is to be supported in an amount of 0.1-2.0%. (col 4, lines 41-52) The zirconia increases the oxygen vacancies and activity of the composition as well as the durability of the ceria. (col 2, linse 61-65)

Art Unit: 1793

The catalytic noble metals are chosen from a group including platinum, ruthenium, iridium, and silver. Metals may be used in combination. (col 6, lines 20-31)

Regarding the identity of the supported precious metal or an oxide thereof, Silver '182 recites the claimed metals of ruthenium, platinum, iridium, and silver. The metals are also taught to be supported in an amount of 0.1-2.0 mol%, which would overlap with the claimed range of 0.1 to 10 wt.%. Silver '182 teaches that a combination of metals may be supported onto the catalyst, but does not specify the ratios of specific metals to one another.

One of ordinary skill in the art would have been motivated to include other precious metals as taught in Silver '182 in order to improve the water gas shift reaction and the mitigation of CO in the exhaust gas.

Regarding the use of multiple metals, Marecot '984 teaches the known practice in the art to utilize more than one catalytic species to increase the scope of catalyst activity. Marecot '984 teaches the creation of a multi-metal catalyst containing at least one metal A and at least one metal B. (claim 1) The metals are chosen from Groups VIII and IB. These groups include iron, ruthenium, iridium, platinum, and silver. (col 3, lines 22-25) Porous carriers known in the art for such catalyst compositions include oxides of cerium or zirconium. (col 1, lines 32-37) Multimetal catalysts are often employed in order to broaden the range of activity of the catalyst. Examples of improved catalytic activity are discussed in different applications. (col 1, lines 14-23) The method of

Art Unit: 1793

Marecot '984 may be utilized for a variety of catalysts, including the conversion of exhaust fumes containing carbon monoxide or soot. (col 5, lines 23-28)

Therefore, regarding the choice of metals and the ratios, it would have been obvious to utilize two or more catalytic species in the catalyst composition of JP '970 in view of Silver '182. Upon choosing the more than one catalytic metal in view of the teaching of Marecot '984, it would have been obvious to one of ordinary skill in the art to optimize the catalyst composition according to the intended use.

JP '970 does not teach a catalyst for treating a suspended particulate matter. However, this is an intended use of the catalyst, and thus it is not given patentable weight as long as the general composition of the catalyst is found. The broadest claim only requires a ceria containing composite oxide. In addition, since a substantially similar compound is described in the prior art, the ability to treat suspended particulate matter is found to be inherent. Both catalysts are also drawn to a catalyst for treating exhaust gas and materials.

Therefore, due to the motivation to optimize the catalytic species component ratios and content, claims 5-17 and 20 are not found patentable over the prior art.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 2, 4-17 and 20 have been considered but are moot in view of the new ground(s) of rejection. Newly applied

Art Unit: 1793

reference JP '970 teaches the use of a ceria-praseodymia-lanthanum oxide with a precious metal supported thereon.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIANA J. LIAO whose telephone number is (571)270-3592. The examiner can normally be reached on Monday - Friday 9:00am to 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ngoc-Yen M. Nguyen/

Application/Control Number: 10/586,548

Page 8

Art Unit: 1793

Primary Examiner, Art Unit 1793

DJL